

Invent Something

Grade Levels: 4th – 8th

Time Requirement: Approximately 20 minutes to prepare and 90 minutes to complete.

Objectives:

The student will:

- Gain a better understanding of the process of invention
- Gain an appreciation for those who invent

Activity Summary:

Students invent or modify a household appliance. In the process, they learn how inventions address needs.

New Mexico Standards:

Modern, Classical, and Native Languages Content Standards 1, 2 and 6
Social Science Benchmarks IV-A
Science Strand III, Science and Society, Standard I, Benchmark I
Arts Content Standard 2

Materials:

Chart paper and pens, pencils and paper, colored pencils.

Background Information:

During the 1940's and 50's, computers were huge machines that cost tens of thousands of dollars and required a team of operators to make them run. Over the past 60 years, inventors have made great strides towards making computers smaller, more affordable, and user-friendly. Today, computers are found practically everywhere and are used for applications never envisioned by the early pioneers. What motivation was necessary to make this all come about? What drives people to innovate? In many cases, the motivation is financial gain, while in others it is simply the desire to improve the human condition.

Procedures:

1. **Prepare** by writing the following list of inventions on chart paper. These inventions illustrate how products change over time.

whisk – egg beater – electric mixer
record – cassette tape – CD – iPod
fire – candle – oil lamps – kerosene lamps – electric lights
telegraph – telephone – video conferencing
radio – black & white television – color television – HDTV

2. **What does it mean to invent something?** As a class, consider what the process of invention might look like. Why would someone invent a new tool/product? Why would they modify an existing tool/product? How might they go about doing this? What questions might inventors ask themselves? (What need does this invention fill? Does a version already exist? What shortcomings are there, and can they be addressed?) List these questions on chart paper.
3. **Inventions can make life better.** As a class, brainstorm inventions that have made life easier. To begin, give an example: before computers and calculators, there were slide rules; before the electric iron, people heated up metal irons on the stove and switched out irons as each one cooled; before toasters, people made toast in ovens kept track of time so the toast would not burn. Look to the list of inventions that have changed over time for more examples (see #1).
4. **What inventions are successful?** Brainstorm the qualities that make for a good invention (it makes a task easier, safer, more efficient; it meets a need, etc.) List these qualities on chart paper for student reference.
5. In pairs, students **invent** or improve upon a household appliance. Students should address the questions posted and qualities noted on the chart paper. They then write a detailed description of their invention and compose a visual sketch.
6. In small groups, **students share inventions.** Are there similar approaches or inventions? Did students tackle the same household appliance? Students discuss their development process and thinking.
7. **Regroup** and review as a whole class. Students walk around and view everyone's sketches and descriptions. Are there similar ones?

Vocabulary:

Invention

Adaptation

“Necessity is the mother of invention”

Extensions:

1. *Students make more detailed illustrations of their inventions and mount an exhibition in the classroom that features both their drawings and some descriptive writing about their rationale.*
2. *Students research one famous invention (e.g., the light bulb, airplane) and its inventor(s), finding more information about the invention process and its impact.*

Modifications:

1. *Rather than asking students to come with their own tool to modify or invent, assign students a household item upon which to improve. Then compare students’ versions. Are there similarities? Differences? What were students’ thoughts during the development process?*

Assessment:

- *Observation of students’ comments and participation in class discussion*
- *Observation of students’ interactions in small groups*
- *Evaluation of inventions proposed and students’ rationale*

References:

<http://web.mit.edu/Invent/>

Website of Lemelson-MIT. Celebrates inventors who have turned their ideas into accomplishments.

www.invent.org

The website of the non-profit organization, Invent Now whose mission is to celebrate and foster the spirit and practice of invention — the innate human impulse that drives social and economic progress.

www.falcon.jmu.edu/~ramseyil/inventors.htm

A Website with biographies of famous inventors and links to other interesting related sites.

<http://school.discovery.com/lessonplans/programs/inventioncomputertechnology>

There are lots of lesson plans about inventions and student inventions on line.

Student Datasheets/Worksheets: n/a